



Shri Shivaji Education Society Amravati's
DR. PANJABRAO ALIAS BHAUSAHEB DESHMUKH
MEMORIAL MEDICAL COLLEGE
Shivaji Nagar, Amravati- 444603



Dr. Anil T. Deshmukh
MD (Pathology)
Dean



Shri. Harshvardhan P. Deshmukh
President
Shri Shivaji Education Society

•OfficeTel: 0721-2552353 •Fax: 0721-2552353 •Website: www.pdmme.edu.in •E-mail: drpdmmc2007@rediffmail.com

CRITERION 2- TEACHING LEARNING AND EVALUATION

2.5 EVALUATION PROCESS AND REFORM

2.5.4 RETEST AND ANSWER SHEETS

INDEX

PAGE NO.	CONTENTS
03 to 10	Retest and Answer sheets

RETEST AND ANSWER TEST

Q. Describe intrinsic mechanism of coagulation of blood

i) The mechanism by which coagulation allows for hemostasis is an intricate process that is done through a series of clotting factors. ii) The intrinsic pathway consists of factor I, II, III, IX, X, XI and XII respectively.

iii) Names of factors:

I → fibrinogen factor
 II → prothrombin factor
 IX → Christmas factor
 X → Stuart Power factor
 XI → plasma thromboplastin factor
 XII → Hageman factor

iv) This pathway is the longer pathway of secondary hemostasis. It begins with the activation of factor XII (a zymogen, inactivated serine protease) which becomes XIIA (activated serine protease) after exposure to endothelial collagen.

v) Endothelial collagen is only exposed when endothelial damage occurs. Factor XIIA acts as a catalyst to activate factor XI to factor XI A. Factor XI A

vi) factor IXA goes on to serve as a catalyst for turning factor X into factor Xa. This is known as a cascade. when each factor is activated it goes on to activate many more factors in the next steps.

vii) As you move further down the cascade the concentration of that factor increases in the blood, for example: the concentration of factor IX is more than the factor XI.

viii) when factor II is activated by either intrinsic / extrinsic pathway it can reinforce the intrinsic pathway by giving positive feedback to factors V, VII, VIII, XI, XIII. This makes factor XII less critical patients can actually clot well without factor XII.

ix) The intrinsic pathway is clinically measured as the partial thromboplastin time (PTT)

x) The intrinsic pathway is activated through exposed endothelial collagen and the extrinsic pathway is activated through tissue factors released by endothelial cell after external damage.

This pathway is the longer pathway

Chairperson of Criteria Monitoring
 NAAC Steering Committee
 Dr. P. D. M. M. C. Amravati



DEAN
 Dr. Panjabrao Alias Bhausaheb Deshmukh
 Memorial Medical College, Amravati

Q.2) → ?

1 Describe secondary active transport with examples.

~~Describe the desirable hazards of mismatched blood transfusion~~

i) secondary active transport is defined as the transport of a solute in the direction of its increasing electrochemical potential coupled to the facilitated diffusion of a second solute (usually an ion) in the direction of its decreasing electrochemical potential.

ii) secondary active transport uses the energy stored in their gradient to move other substances against their own gradient.

iii) As one example let's suppose we have a high conc. of Na^+ in extracellular space with $\text{Na}^+ - \text{K}^+$ pump.

iv) Glucose-sodium pump, $\text{Na}^+ / \text{Ca}^{2+}$ exchanger and sodium/phosphate cotransporters are examples.

10
20 M

Roll no 22093

Page No. _____

Date / /

Q) describe fibrin mechanism of coagulation of blood & role of haemophilin

⇒ Coagulation or clotting is defined as the process in which blood loses its fluidity and become jelly-like.

1) Coagulation of blood occurs through a series of reactions due to the activation of a group of substances.

2) Substances necessary for clotting are called clotting factors

13 clotting factors are identified

Factor I - Fibrinogen

Factor II - Prothrombin

Factor III - Thromboplastin (Tissue factor)

Factor IV - Calcium

Factor V - Labile factor

Factor VI - Existence has not been proved.

Factor VII - Stable factor

Factor VIII - Antihaemophilic factor

Factor IX - Christmas factor

Factor X - Stuart Prower factor

Factor XI - Plasma thromboplastin antecedent

Factor XII - Hageman factor

Factor XIII - Fibrin-stabilizing factor

Q

Blood clotting occurs in three stages.

1) Formation of prothrombin activator.

2) Conversion of prothrombin into thrombin.

3) Conversion of fibrinogen into fibrin.

Chairperson - Criteria No. 77
NAAC Steering Committee
Dr. P. D. M. M. C. Amravati



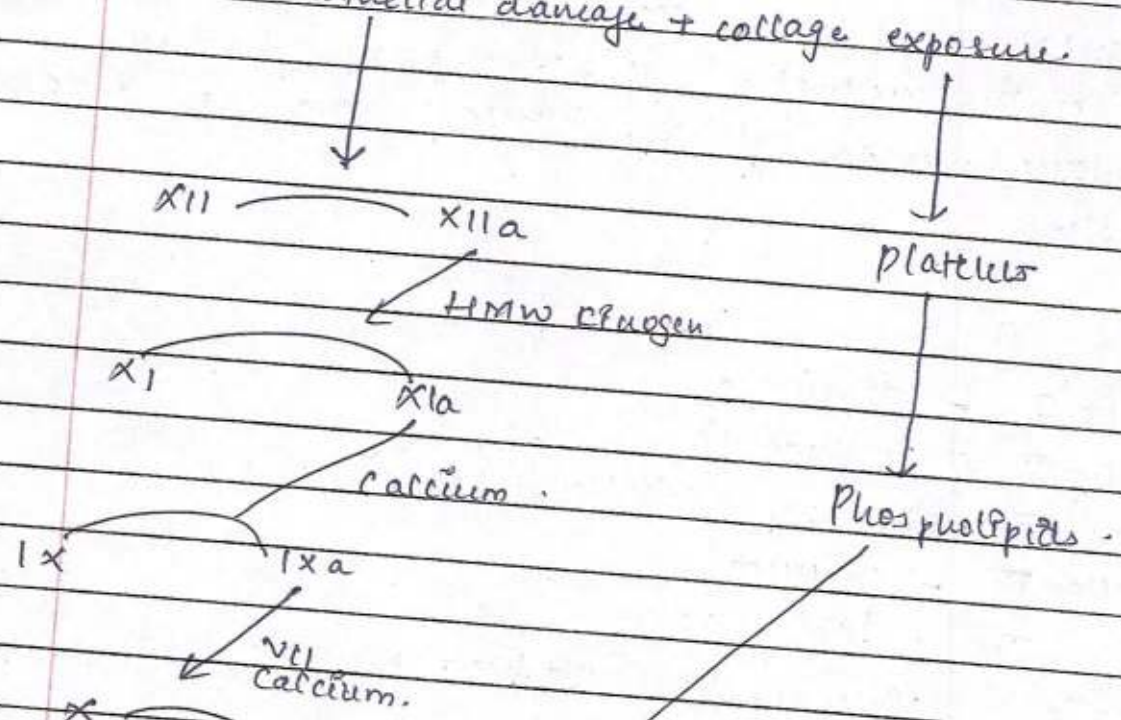
DEAN

Dr. Panjabrao Alias Bhausaheb Deshmukh
Memorial Medical College, Amravati

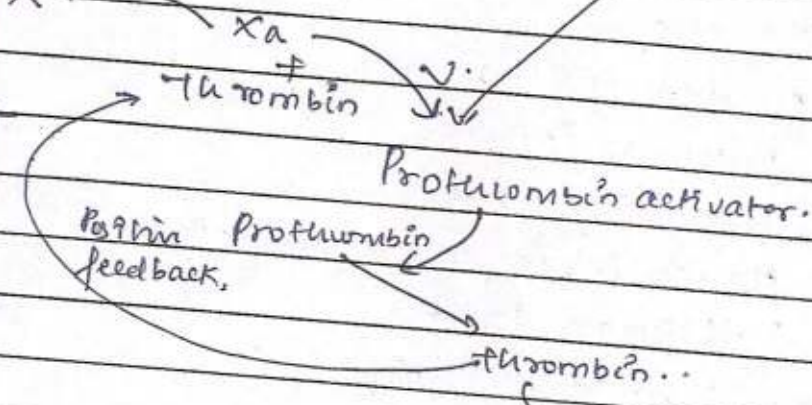
Intrinsic pathway.

Stage I

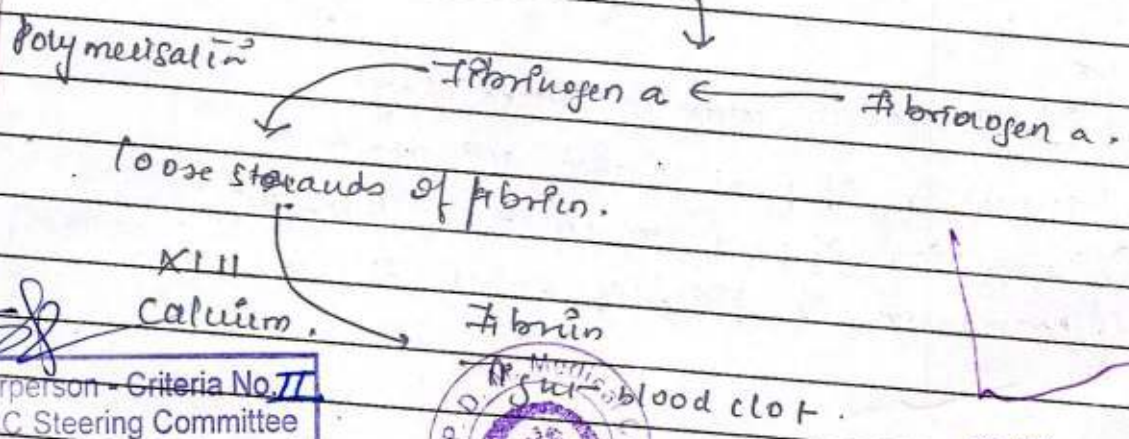
Endothelial damage + collage exposure.



Stage II



Stage 3



① Haemopoiesis is formation of blood cells in bone marrow -
there are 3 types of blood cells. (A) RBC

(B) WBC

(C) Platelets.

Haemophilia is destruction blood due to many different types of factors.

(A) Anaemia

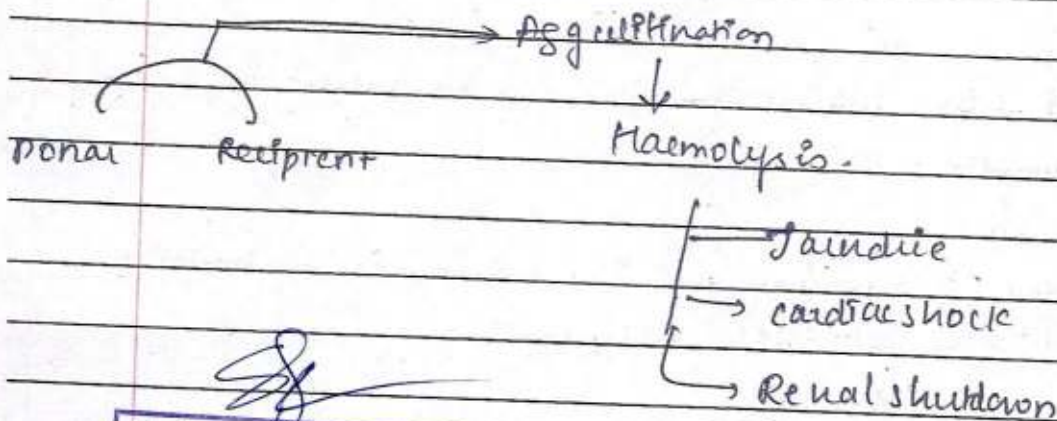
SAQ ① state & describe hazards of mismatched blood transfusion

→ these are of 4 types -

- 1) Reaction due to mismatched blood transfusion
- 2) Reactions due to massive blood transfusion.
- 3) Reaction due to faulty techniques during Blood transfusion
- 4) transmission of infections.

1) Mismatched blood transfusion:

- transfusion reaction due to 1) ABO incompatibility
- 2) Rh incompatibility.



Chairperson - Criteria No. II
NAAC Steering Committee
Dr. P. D. M. M. C. Amravati



DEAN

Dr Panjabrao Alias Bhausaheb Deshmukh
Memorial Medical College, Amravati

② Incompatible Blood Transfusion

① ABO Incompatibility:-

Due to ABO incompatibility transfusion, the transfusion reaction occurs between donor's RBC and recipient-plasma.

- If donor plasma contains antibody against recipient RBC agglutination does not occur b/c these antibodies are diluted in recipient blood.
- If recipient plasma contains antibody against donor's RBC - the immune system launches a response against the new blood cells.
- recipient's antibodies adhere to the donor's RBC, which are agglutinated and destroyed.
- large amount of free haemoglobin is liberated into plasma.
- this leads to transfusion reaction.

② Rh Incompatibility:-

- Rh-ve person receives Rh +ve blood for 1st time, not affected, reaction does not occur immediately.



Rh antibodies develop within 1 month.



Transfused RBC, which are still in recipient blood, are agglutinated.



delayed transfusion reaction occurs, it is usually mild and does not affect recipient.



Antibodies developed in the recipient remain in body



when this person receives Rh⁺ve blood for the 2nd time, the donor RBCs are agglutinated and severe incompatibility transfusion occurs which can be fatal for the recipient.

Q) Describe secondary transport.

- Transport of substance with help of sodium ion
- the substance is transported with Na⁺ by common carrier protein.
- when Na⁺ is transported by carrier protein another substance may transport in ^{one} ~~the~~ direction or opposite direction.

2

[Signature]

Chairperson - Criteria No. 11
NAAC Steering Committee
Dr. P. D. M. M. C. Amravati



DEAN

Dr. Panjabrao Alias Bhausaheb Deshmukh
Memorial Medical College, Amravati